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ABSTRACT

Many organizations and agencies collect data related to postsecondary education. To improve the coordination of data definitions and surveys, guidelines have been prepared to define the best survey practices for data collectors and data providers. The first section of this document, "Best Practices for Data Collectors," covers the responsibilities of data collectors, designing and distributing data collection instruments, explanatory information, survey followup, and reporting and publication. The second section, "Best Practices for Data Providers," addresses the responsibilities of those who provide data, including tips for providing consistent data, filling out the survey, and submitting and checking the survey. Four appendixes supplement the best practices section. Appendix A describes the Integrated Postsecondary Education Data System of the National Center for Education Statistics. Appendix B contains selected sources of postsecondary data collection, and Appendix C lists a number of major higher education data sources. Appendix D provides 25 selected references for designing and implementing surveys. (SLD)

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Best Practices for Data Collectors and Data Providers

Report of the Working Group on Better Coordination of Postsecondary Education Data Collection and Exchange

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Best Practices for Data Collectors and Data Providers

Report of the Working Group on Better Coordination of Postsecondary Education Data Collection and Exchange

Prepared for the Council of the National Postsecondary Education Cooperative (NPEC) and its Working Group on Better Coordination of Postsecondary Education Data Collection and Exchange by Melodie Christal, Renee Gernand, Mary Sapp, and Roslyn Korb, under the sponsorship of the National Center for Education Statistics (NCES), U.S. Department of Education.

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TABLE OF CONTENTS

Page

Preface vii

I. Best Practices for Data Collectors I-1

II. Best Practices for Data Providers II-1

Appendix A. Integrated Postsecondary Education Data System A-1

Appendix B. Selected Sources of Postsecondary Data Definitions B-1

Appendix C. Selected Data Sources C-1

Appendix D. Selected Survey Methodology References D-1

PREFACE

Many agencies and organizations establish or influence national data definitions and standards in postsecondary education, including federal agencies, professional associations, accrediting bodies, data exchange groups, and publishers of educational guides and magazines. These entities independently, and in many cases unknowingly, promulgate inconsistent definitions and survey protocols which increase the burden on institutions and undermine the quality and comparability of data.

The National Postsecondary Education Cooperative (NPEC) established the *Better Coordination of Data* project and asked the Working Group for the project to address the question: "What can be done to better coordinate data definitions and surveys on a national basis to achieve greater comparability and relieve institutional data burden?" The Better Coordination of Data Working Group, in consultation with representatives from various organizations that survey institutions of higher education, drafted a document identifying "best practices" for data collectors. The draft was reviewed at the 1997 NPEC Council meeting and the consensus was that further work, including the development of a "best practices for data providers," could be of substantial interest and usefulness.

In January 1998, the NPEC Steering Committee approved the completion of *Best Practices for Data Collectors and Providers* and suggested it be disseminated widely. These best survey practices were distributed for field review in spring 1998 at the annual forum for the Association for Institutional Research (AIR) and the annual meeting of the State Higher Education Executive Officers (SHEEO) research and policy staff. They were also posted on the NPEC web site and feedback was solicited. This document reflects the thoughtful work of the Better Coordination of Data working group and feedback from reviewers.

This document is organized into two sections. Section I, *Best Practices for Data Collectors*, covers the responsibilities of data collectors, designing and distributing data collection instruments, explanatory information, survey followup, and reporting and publication. Section II, *Best Practices for Data Providers*, addresses the responsibilities of data providers, tips for providing consistent data, filling out the survey, and submitting and checking the survey. There are also four appendices that supplement the best practices sections. Appendix A describes the Integrated Postsecondary Education Data System (IPEDS) of the National Center for Education Statistics (NCES), the federal government's agency for reporting statistical data. Appendix B contains selected sources of postsecondary data definitions. Appendix C includes a number of major higher education data sources, and Appendix D provides selected references for designing and implementing surveys.

The intent of this document is that the many collectors and providers of data will use it and work together to improve the quality of data and to reduce the burden of data collection for both entities.

The Board of Directors for the Association for Institutional Research has endorsed these *Best Practices* and recommends these practices to AIR members.

This document is also available on the NPEC web site at <http://nces.ed.gov/npec>.

I. BEST PRACTICES FOR DATA COLLECTORS

Responsibilities of Data Collectors

1. Before initiating a new survey, determine whether data already available from your organization or publicly available data can be used to meet an emerging information need. Refer to the appendices for sources of higher education data.

2. Become familiar with relevant laws, regulations, or administrative procedures that may affect the data collection activity. Make respondents aware of these laws if they might affect participation, responses, or uses of the data.

   Example: In some states, confidentiality regulations prohibit the release of individually identifiable data.

   Example: The National Center for Education Statistics' (NCES) Integrated Postsecondary Education Data System (IPEDS) Fall Enrollment Survey (EF) indicates that the collection and reporting of racial/ethnic data are mandatory for all institutions which receive, are applicants for, or expect to be applicants for federal financial assistance as defined by the Department of Education regulations implementing Title VI of the Civil Rights Act of 1964.

3. Identify the most appropriate and knowledgeable data person to complete the survey and obtain contact information on that person (e.g., name, title, office, address, phone number) through higher education directories or phone calls. Send the survey directly to that person. Do not send the same survey to two different offices at an institution for completion.

4. Take steps to minimize the time, cost, and effort required of data providers. Schedule the data collection, to the extent possible, at the convenience of the data providers and with adequate time to respond. Learn the annual work cycles of the respondents.

   Example: Do not ask registrars to respond to a survey in the middle of their peak registration periods.

   Example: Request enrollment data after the "census" or "benchmark" date.

   Example: Data on the number of degrees awarded during the year are typically available by October 1 when the IPEDS Completions Survey is due.

5. Make sure the respondent can provide accurate data for the requested item.

   Example: Do not ask students to report the source of their scholarships and grants. A better source would be the institution's financial aid office.

6. Keep the survey as short as possible. Ensure that the response burden does not exceed a reasonable length and is justified by the use of the data. Examine each item in the data collection instrument to make sure that the information is needed and will be used. Avoid requesting information that is of marginal use. Avoid requesting data that can be obtained from another available survey or database.

   Example: Do not ask for disaggregations of data that will not be used.

7. Whenever possible, test the survey for "understandability" and respondent effort through focus groups, cognitive laboratory sessions, or pilot testing. The purpose of these activities is to ensure that:

   - Each item is understandable to the respondent
   - The technical terms used are appropriate to the respondent
   - The questions are clear and unambiguous to the respondent
   - The items elicit a single response
   - The survey is not too much of a burden for the respondent

8. Whenever possible, conduct a "trial-run" in which results are made available only to survey respondents before releasing them publicly.

9. Seek periodic review of the survey instrument from experienced, knowledgeable individuals.

Designing the Data Collection Instrument

1. Provide clear and detailed instructions for completing the data collection instrument. Provide definitions and clarifying information for individual items and terms.

   Example: Good surveys contain a glossary defining specific terms and line-by-line instructions for completing the survey.

   Example: Faculty is a term that is defined in many ways; it can include instructional faculty, research faculty, graduate teaching assistants, and so on. Enrollment can be reported many ways, including headcount, full-time equivalency, full-time or part-time. Indicate which definition is being used in the survey.

2. Make definitions of data elements consistent with standard definitions and analytic conventions (i.e., calculations or methodologies) when appropriate and feasible. If appropriate, use definitions that conform to definitions developed nationally to ensure that the data reported will be comparable to data reported by other agencies and organizations at the institutional, state, and federal levels. If standard definitions and/or analytic conventions are used, indicate the sources of the definitions or conventions used. A number of resources are identified in the appendices.

   Example: The Common Data Set (CDS) uses a number of IPEDS definitions (e.g., race/ethnicity categories, descriptions of degrees, credit hour, degree-seeking students).

3. Determine whether another organization is already collecting data related to the items you plan to collect; if so, obtain a copy of that survey and consider using the same definitions and analytic conventions as a starting point for your survey. Another option is to ask respondents to report data directly from the other survey or to request a copy of the completed survey. Several sources of data definitions and data sources are identified in the appendices.

   Example: The CDS requests that respondents supply enrollment from Part A of the IPEDS Fall Enrollment Survey and provides IPEDS line and column numbers that correspond to the requested information.

4. Any deviations from accepted usage should be explained.

5. Indicate subpopulations to include and/or exclude in the reporting.

   Example: Survey instructions may request that respondents include all students enrolled in courses creditable toward a formal award, including high school students taking regular college credits and excluding students enrolled exclusively in noncredit courses, auditing classes, and/or studying abroad.

6. Be clear about the date or time period the survey should reflect.

   Example: Ask for enrollment data as of the institution's official fall reporting date (e.g., census or benchmarking date).

   Example: The CDS requests the number of degrees awarded by an institution for the period July 1 to June 30 (which are also the dates for the IPEDS Completions Survey).

7. If more than one analytic convention is commonly used for a given measure, indicate the preferred convention. Ask respondents to indicate if they used a different analytic convention and why.

   Example: The number of undergraduate FTE students can be calculated by dividing the number of credits hours produced by 12 or 15 credit hours. Indicate which is preferred but also ask if the respondent used a different convention.

8. Use standard language. Avoid jargon and abbreviations. Keep questions short and simple.

9. Make categories as concrete as possible. Use simple and exact terms.

   Example: Replace vague quantifying words (e.g., frequently, often, sometimes) with specific numerical ranges whenever possible.

10. If response categories are supposed to be mutually exclusive and exhaustive, make sure all possible categories are included on the survey. If in doubt about whether categories are exhaustive, include a response option of "other, please specify."

11. If data may be unknown or missing, be sure to include an "unknown/missing" option.

    Example: Include "unknown/missing" as a category when requesting race/ethnicity data.

12. Provide a "not applicable" response for questions that may not be applicable to all respondents.

13. Do not combine two separate ideas inappropriately and request a single response.

14. Design the item sequence of the survey such that it increases the respondent's ability to complete the survey. Keep topic-related questions together and provide transitions between topics.

    Example: The CDS requests many different types of data. Each type of data is listed in a separate section with a clear heading that identifies the topic (e.g., general information, enrollment and persistence, student life, annual expenses, financial aid).

15. Definitions and cohorts within one survey and across related surveys should be consistent. If data for a cohort are reported in more than one section of the survey, indicate that grand totals for each section should match.

    Example: In the IPEDS EF, the enrollment summary of students by age in part B states "the total of full-time students by age, columns (1) and (2), line 12 should equal line 08 columns (15) and (16), respectively, of part A (enrollment summary by race/ethnicity)."

16. Be sure that return address, fax number, and contact information are included on the form itself as well as in accompanying letter. Consider including an addressed, postage-paid envelope to return the survey.

Distributing the Data Collection Instrument

1. Provide multiple options for respondents to submit data, including electronically.

   Example: Allow respondents to submit data in written form, on diskettes, or electronically through electronic data interchange (e.g., SPEEDE/ExPRESS), by replying to e-mail, or through web sites.

2. Supply data from the previous year of the survey, if available, as part of the data-collection process. Also include the name and office of the individual completing the prior year survey.

3. Alert respondents to any changes in long-standing survey items.

4. Provide the name of a contact person who can answer questions; include a phone number and/or e-mail address.

5. Include a section on the survey for respondents to suggest changes or point out problems.

   Example: Include a section asking respondents to list any items that have been estimated, for which they did not use current data, for which they did not use the requested analytic convention, for which they had a question about methodology, or for which they had other questions or comments.

6. If respondents are asked to submit multiple documents or other materials, provide a checklist for each of the items to be submitted.

Explanatory information that Should Accompany the Survey

1. The following information should be provided:

   - Purposes of the data collection activities and how data will be used
   - Importance of respondents' participation
   - Confidentiality of response, if appropriate
   - Methodology used for data collection
   - All uses of the data (e.g., publication, analysis, licensing/resale)

2. Describe how missing data will be treated.

   Example: Indicate whether missing data will be imputed, eliminated, gathered from other sources, or left blank.

3. If the database or survey response is to be supplemented with information from other sources, describe those data and their sources.

4. If survey instruments vary for different types of institutions, describe the significant differences.

5. Indicate how many years of data will be publicly available or archived. Indicate whether respondents can correct archived data and/or can obtain a copy of archived data, and if so, in what format and at what cost.

Survey Followup

1. Perform edit checks on the data.

   Example: Identify and correct or delete strange or discrepant data, missing data, or, if appropriate, unusually high or low data values.

2. Reconcile any data inconsistencies with the respondent and rectify, if necessary, in the database. Document the reasons for significant changes in the respondent's data from one year to the next.

3. If appropriate, provide the respondent with a verification copy of the information or draft report before publication; make any requested changes before publication. As part of this process, provide data from the previous year, if appropriate.

4. Provide the respondent with a summary of results or final copy of the report, or if feasible, the database itself.

5. Consider sending thank you notes to respondents.

Reporting and Publication

1. Describe the sampling methodology and sampling universe used in the study.

2. Indicate when the data were collected and/or the date of publication (month and year at a minimum), so that readers can tell how current the information is.

3. Report response rates for the survey as a whole as well as for individual items.

4. If data are imputed for non-responses, indicate the methodology used and the percent of cases that were imputed.

II. BEST PRACTICES FOR DATA PROVIDERS

Responsibilities of Data Providers

1. Become familiar with relevant laws, regulations, or administrative procedures that may affect the provision of data.

   Example: In some states confidentiality regulations prohibit the release of data that identifies individuals by name or Social Security number.

2. Develop procedures to ensure that data used for reporting purposes are accurate and internally consistent. Verify data with the office that serves as the custodian for the database and other offices that produce reports using the same database.

3. Consider developing your database using existing national definitions and analytic conventions where appropriate and feasible. A number of resources are identified in the appendices.

4. Make every effort to ensure that the information provided for the survey is the information that was requested. If you deviate from the instructions, note how you responded and why.

   Example: If a report requests a graduation rate for <u>all</u> students and your response is the rate for full-time students only, indicate that the data reported are for full-time students.

5. Try to meet the survey due date and factor in contingency time. If, however, you are unable to respond by the requested date (or very shortly thereafter), let the contact know you will be late and when the survey will be sent.

6. If your office does not have data to respond to a survey or does not plan to fill it out, identify the most appropriate and knowledgeable respondent. Contact this office as soon as possible and ask them to supply the requested information prior to the survey due date. Allow sufficient time for followup, if necessary. Send the reporting office all relevant instructions and definitions for providing the information, including the name of a contact person for questions.

7. If information is not available to respond to a survey, indicate this on the survey and, if appropriate, provide feedback explaining why information could not be provided.

8. If current data are not available, but data from a prior period are and would provide a reasonable estimate, consider providing those data; indicate that substitute data have been used and any other relevant information.

   Example: A survey requests the percent of students enrolling in graduate school immediately following graduation for the current year. However, the only data available are from a survey of seniors conducted every two years regarding their plans following graduation. In this case, provide the response from the most recent year of data, and indicate that the data are self-reported by graduating seniors (as opposed to alumni enrolled in graduate school) and are from the prior year. The data collector can then determine whether to use the response.

Example: If a survey requests the number of graduates in the current year by discipline but degrees have not yet been posted, consider reporting IPEDS completions data for the prior year and note that data are from the prior year.

Providing Consistent data

1. Use "census files" created at an official census or benchmark date for all external reporting rather than "operational files" that are updated daily. Make sure such files are archived so that the data and procedure can be replicated if necessary.

2. Keep a calendar of survey distribution and due dates so there is adequate time to complete surveys and/or to follow up on surveys that may have been distributed to another office for completion.

3. Keep a record of names of individuals from outside departments who supply information for the survey in case there is a question or the survey is repeated in the future. Also keep a master list of all computer programs or other sources of data used to respond to the survey. This list should be used and updated in subsequent years.

4. If the same information is requested on more than one survey (i.e., assuming the surveys use the same definitions and analytic conventions), be sure that the data provided are consistent by keeping a master standard survey response form that is consulted for all surveys and used whenever possible.

Filling Out the Survey

1. Before filling out the survey, obtain a copy of last year's data (if not provided by the data collector) or other survey instruments for the current year that ask for similar information to use as references.

2. Read all instructions and definitions carefully before completing the survey; prior to responding to individual survey items, read instructions for those items again. Note whether there are any changes in previously used survey items.

3. Pay special attention to subpopulations that should be included and/or excluded from the report.

   Example: Survey instructions may request that respondents include all students enrolled in courses creditable toward a formal award, including high school students taking regular college credits and excluding students enrolled in noncredit courses, auditing classes, and/or studying abroad.

4. In the absence of instructions to the contrary, data should conform whenever possible to nationally developed definitions to ensure that the information provided will be comparable to that provided to other agencies and organizations at the institutional, state, and federal levels.

5. If at all possible, use analytic conventions (i.e., calculations or methodologies) specified in the survey. If different analytic conventions are used, indicate what was used and why.

   Example: The number of undergraduate FTE students can be calculated by dividing the number of credits hours produced by 12 or 15 credit hours. If no convention is indicated, indicate which is used in the response.

6. Use the reporting period indicated by the survey. If a different reporting period is used, note what was used and why.

7. If categories are supposed to be mutually exclusive and exhaustive, check that the sum of all categories equals the total number of observations.

8. Differentiate between data "not applicable" and "not available" and indicate the appropriate response on the survey.

Submitting and Checking

1. Check data entry on the survey instrument to ensure data were recorded correctly. Ensure that the sum of disaggregated data equals the total.

2. Double check to ensure that survey instructions and data definitions were followed. Consider having someone other than the respondent review the responses.

3. Make sure that definitions and cohorts within one survey and across related surveys are consistent. If data for a cohort are reported in more than one section of the survey, make sure the totals for each section are the same.

   Example: In the IPEDS EF, the enrollment summary of students by age (part B) indicates that the "total of full-time students by age, columns (1) and (2), line 12 should equal line 08 columns (15) and (16), respectively, of part A (enrollment summary by race/ethnicity)."

4. Check the survey responses against the institution's standard survey response form for consistency of information.

5. Before sending the survey, compare the responses with data from the previous year to check the reasonableness of current responses.

6. Make sure the name and contact information for the survey respondent or office is on the survey.

7. Keep a copy of the survey and your responses for your files.

8. If problems or questions arise, call the contact person and/or attach comments to the survey instrument itself suggesting changes or explaining items that were problematic. Consider providing the data collector with a copy of *Best Practices for Data Collectors*, published by the National Postsecondary Education Cooperative (NPEC); this document is also available on the NPEC web site at <http://nces.ed.gov/npec>.

9. If asked to submit multiple documents or other materials, make sure that all requested items are submitted.

10. If the data collector provides a draft report or requests verification of information, review the material and respond by the deadline.

APPENDIX A. INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM

NCES has established the Integrated Postsecondary Education Data System (IPEDS) as its core postsecondary education data collection program. It was designed to help NCES meet its mandate to report full and complete statistics on the condition of postsecondary education in the United States. It is a single, comprehensive data collection system developed to encompass all identified institutions whose primary purpose is to provide postsecondary education. The IPEDS system is built upon a series of interrelated surveys to collect data in such areas as enrollment, program completions, faculty and staff, and financing.

IPEDS Universe

IPEDS data are collected from approximately 11,000 postsecondary institutions. The following types of institutions are included in IPEDS:

- Baccalaureate or higher degree granting
- Two-year
- Less than two-year (i.e., institutions whose awards usually result in terminal occupational awards or are creditable toward a formal two-year or higher award)

Each of these three categories is further disaggregated by control (public, private nonprofit, and private for-profit).

IPEDS Surveys

Listed below are the IPEDS surveys and the data collected:

Institutional Characteristics. Institution name; address; congressional districts; county; tuition; control or affiliation; calendar systems; levels of degrees and awards offered; types of programs; credit and contact hour data; and accreditation. Data are collected annually and the survey is due September 1.

Fall Enrollment. Full- and part-time enrollment by racial/ethnic category and sex for undergraduates, first professional, and graduate students as of the institution's fall reporting date or October 15. Age distributions by level of enrollment and sex in odd-numbered years. First-time degree-seeking student enrollments by resident status in even-numbered years. The survey is due November 15.

Fall Enrollment in Occupationally-specific Programs. Fall enrollment in each occupationally specific program, by sex and race/ethnicity in odd-numbered years. The survey is due November 15.

Completions. Numbers of associate, bachelor's, master's, doctor's, and first-professional degrees, and other formal awards, by discipline and sex of recipient in the period July 1 to June 30. Awards by racial/ethnic categories, program, and sex are collected annually. The survey is due October 1.

Graduation Rate. Tracks a cohort of full-time, first-time, degree seeking students by sex and race/ethnicity; data are reported for completers, still enrolled, and other students not graduated (including transfers out of the institution). Data are collected annually and the survey is due March 1.

Salaries, Tenure, and Fringe Benefits of Full-time Instructional Faculty. Full-time instructional faculty by rank, sex, tenure status, and length of contract; salaries and fringe benefits of full-time instructional faculty as of October 1. Data are collected annually and the survey is due November 15.

Fall Staff. Number of institutional staff by occupational activity, full- and part-time status, sex, and race/ethnicity as of November 1. Data are collected in odd-numbered years. The survey is due November 15.

Finance. Current fund revenues by source (e.g., tuition and fees, government, gifts); current fund expenditures by function (e.g., instruction, research); assets and indebtedness; and endowment investments for the previous fiscal year. Data are collected annually and the survey is due January 15.

College and University Libraries. Number of branches; number and salaries of full-time equivalent staff, by position; circulation and interlibrary loan transactions; book and media collections; public service hours and number served; operating expenditures by purpose. Data are collected in even-numbered years. The survey is due November 15.

Accessing IPEDS Data

IPEDS data from 1988-89 onward are currently available through the NCES web site. In addition, NCES now provides preliminary, edited IPEDS data for some current year surveys. NCES cautions that the preliminary data should not be used to produce national estimates until after all institutions have responded to the survey or data have been imputed.

To access the complete list of IPEDS data, sign on to the NCES web site <http://nces.ed.gov>. Select "Data" and then select "Integrated Postsecondary Data System (IPEDS)" under "Data Products by Survey." From there, select "Download IPEDS databases from 1988 to present" and a list of databases will be provided from which you can make your selection.

The "IPEDS Interactive Search Tool" is another available on-line product, developed to make IPEDS data more accessible and easier to use. This search tool for selecting postsecondary education institutions is based on criteria for which the user can choose specific values. Users select institutions by searching on characteristics for a selected survey. This tool gives users the ability to browse data on screen and to download selected records. Note that this search tool can be used only for data from 1995 and 1996.

APPENDIX B. SELECTED SOURCES OF POSTSECONDARY DATA DEFINITIONS

Common Data Set. The Common Data Set (CDS) is a collaborative effort between four major college guide publishers and the higher education community to develop a standard set of questions and data definitions for use in surveys. The CDS is subject to annual revisions. The 1998 CDS contains questions and definitions related to general institutional characteristics; enrollment; admission policies; transfer admission policies; academic offerings; student life; costs; and financial aid. The items and definitions are posted on participating publisher web sites each August. For information, contact:

- The College Board <http://www.collegeboard.org/gp/html/commondataset.html> (212-713-8250)
- Peterson's <http://www.petersons.com/research/he/cds> (800-338-3282)
- Wintergreen Orchard House <http://www.wgoh.com/cds.html> (207-729-4047)
- U.S. News <http://www4.usnews.com/usnews/edu/misc/cocds.htm> (202-955-2389)

Handbook on Human Resources: Recordkeeping and Analysis. **National Center for Education Statistics, 1998.** This document is intended as a basic guide to assist postsecondary institutions in developing an analytical database on their human assets (e.g., faculty and staff). It presents information on what data to maintain, standardized definitions, and how to analyze and report the data. For more information, contact NCES (202-219-1590).

Integrated Postsecondary Education Data System (IPEDS) Surveys. See Appendix A.

Joint Commission on Accountability Reporting. The American Association of State Colleges and Universities (AASCU), the American Association of Community Colleges (AACC), and the National Association of State Universities and Land-Grant Colleges (NASULGC) created the Joint Commission on Accountability Reporting (JCAR) to develop reporting conventions that provide a consistent and comparable source of information to respond to accountability demands. Three reports have been produced:

- ***A Need Answered: An Executive Summary of Recommended Accountability Reporting Formats*, 1996.** This report provides a summary of reporting conventions for student advancement toward completing educational goals, student charges (costs), graduation rates, and transfer rates. Detailed information is provided in the *JCAR Technical Conventions Manual.*
- ***JCAR Technical Conventions Manual*, 1996.** This publication provides detailed information for the reporting conventions summarized in *A Need Answered.* It defines terms, calculation protocols, reporting formats, and data collection methodologies.

- ***JCAR Faculty Assignment Reporting*, 1997.** Detailed reporting conventions for describing assigned faculty activity and which types of faculty members are teaching students are reported in this document.

For information, contact AASCU (202-293-7070), AACC (202-728-0200), or NASULGC (202-778-0818).

***Postsecondary Education Facilities Inventory and Classification Manual.* National Center for Education Statistics, 1992.** This manual provides a common framework and coding structure to be used in collecting and reporting inventory data on college and university "buildings," and on the space within those structures. For more information, contact NCES (202-219-1590).

***Postsecondary Student Data Handbook*, National Center for Education Statistics, forthcoming.** This document is being developed to respond to the need for comparable definitions, methods, and formats to record, exchange, and report postsecondary educational experiences of students. The handbook presents a comprehensive set of data elements, definitions, and conventions for use in monitoring and assessing student behavior as students matriculate into, advance through and out for postsecondary institutions. For more information, contact NCES (202-219-1590).

APPENDIX C. SELECTED DATA SOURCES

There are numerous other data sources on higher education that are accessed easily and that may make it unnecessary for a data collector or researcher to initiate a new survey. The 1996 *Compendium of National Data Sources on Higher Education*[1], published by the State Higher Education Executive Officers (SHEEO), provides a guide to 115 major data resources related to higher education in the United States. For each data source the following information is provided: organization or publisher, data source/title, description, data collected or reported, data availability, current data uses, publications, source or contact including World Wide Web addresses.

Listed below are some of the data sources referenced in the *Compendium,* grouped into the five sections used in the *Compendium:* general reference; student participation and progress; finance and management; faculty and staff; and facilities, libraries, and technology. Contact information for most of the organizations cited below can be found in the *Higher Education Directory* published by Higher Education Publishers, Inc. (<http://www.hepinc.com> or 703-532-2300). In addition, most of these organizations have web sites.

General Reference

***AACC Annual,* American Association of Community Colleges.** Data on enrollment and funding are provided by state; other topics such as labor and economic trends are also highlighted.

***The College Handbook,* The College Board.** Data from nearly 4,000 accredited postsecondary institutions are published in *The College Handbook*, a resource for those selecting and applying to college.

***The Condition of Education,* National Center for Education Statistics.** This annual report provides key data that measure the health of education, monitor developments, and show major trends.

***Digest of Education Statistics*, National Center for Education Statistics.** This annual publication summarizes information collected by NCES on all levels of education from pre-kindergarten through graduate school.

***Directory of Postsecondary Institutions,* National Center for Education Statistics.** Basic directory information describing U.S. public and private, nonprofit and for profit postsecondary institutions.

***Fact Book on Higher Education*, American Council on Higher Education.** Published annually since 1958, this sourcebook contains more than 200 tables of baseline and trend data related to higher education.

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[1] Russell, Alene Bycer, and Melodie E. Christal, ed. *Compendium of National Data Sources in Higher Education.* Denver, CO: State Higher Education Executive Officers, 1996. Copies are available from SHEEO for $20 prepaid, 707-17th Street, Suite 2700, Denver, CO, 80202. Contact SHEEO at 303-299-3686 or <www.sheeo.org>.

***Higher Education Directory*, Higher Education Publishers.** Directory information on over 3,600 colleges and universities is provided. In addition, this publication provides directory information for U.S. Department of Education offices; the state higher education agencies; higher education associations; higher education consortia; and regional, national, professional, and specialized accrediting agencies.

***High School Graduates: Projections by State*, Western Interstate Commission on Higher Education.** Includes national, regional, and state level data on public and nonpublic school enrollments and high school graduates.

***The State Postsecondary Education Structures Handbook*, Education Commission of the States.** This handbook provides comparative data and descriptions on the governance structures of postsecondary education for each state.

WebCASPAR, National Science Foundation. The National Science Foundation's WebCASPAR can be accessed via the web at <http://www.nsf.gov/sbe/srs/stats.htm> and contains IPEDS data as well as information on research and development expenditures, federal funding, and graduate student enrollment.

Student Participation/Progress

***Admissions Trends Survey*, National Association for College Admission Counseling.** Information about application trends, recruitment, and admission management are collected.

Annual Survey of Graduate Enrollment, Council of Graduate Schools and Graduate Record Examinations. This survey collects data on fall graduate enrollment and graduate degrees.

Baccalaureate and Beyond Longitudinal Study (B&B), National Center for Education Statistics. This survey, conducted every three years, provides extensive information on education and employment activities after completion of the bachelor's degree. In addition, it includes information on the undergraduate experience, particularly in the year of graduation.

Beginning Postsecondary Students Longitudinal Study (BPS), National Center for Education Statistics. Data on student persistence, progress, and attainment from initial entry into postsecondary education through leaving and entry into the workforce are collected.

Cooperative Institutional Research Program (CIRP) Freshman Survey, Higher Education Research Institute, University of California, Los Angeles. Since 1966, CIRP has administered a survey of entering freshman in a national sample of colleges and universities. This survey collects baseline data on demographics, academic preparation, finances, aspirations, and attitudes and values.

High School and Beyond (HS&B), National Center for Education Statistics. This longitudinal study follows high school students after graduation to postsecondary education and work.

***High School Profile Reports*, American College Testing Program.** Academic abilities and nonacademic characteristics of ACT-tested high school juniors and seniors are published in these reports.

National Assessment of Educational Progress (NAEP), National Center for Education Statistics. NAEP is an ongoing, congressionally mandated project established in 1969 to obtain data on the educational achievement of American elementary and secondary students.

National Education Longitudinal Study of 1988 (NELS: 88), National Center for Education Statistics. In 1988, 25,000 eighth graders were surveyed. Since then, followup surveys have been conducted to reflect academic growth, school experiences, coursework, and instructional practices.

National Longitudinal Study of 1972 (NLS-72), National Center for Education Statistics. NLS-72, the first NCES longitudinal study, explores the transition students make from high school to college to work. The sample began with 16,683 high school seniors; five followup surveys have been conducted.

National Survey of Recent College Graduates, National Science Foundation. Demographic information on 26,000 individuals who recently obtained bachelor's or master's degrees in science and/or engineering are reported.

Survey of Earned Doctorates (SED), National Science Foundation. This survey collects data on the number and characteristics of students earning doctoral degrees from U.S. institutions.

Finance/Management

Basic Student Charges at Postsecondary Institutions, National Center for Education Statistics. This report contains data on tuition and fees and room and board for resident and nonresident students at postsecondary institutions. Data are provided for undergraduate, graduate, and first-professional programs.

***College Costs and Financial Aid Handbook*, The College Board.** This reference is a guide to students and parents about the expected costs of college.

***Comparative Financial Statistics for Public Two-year Colleges: National Sample*, National Association of College and University Business Officers.** Comparative financial and other statistics such as revenues, expenditures, staff ratios, and course enrollment distributions are reported for two-year colleges.

Grapevine Survey and Reports, Illinois State University, Center for Higher Education. *Grapevine* reports on total state effort for higher education including state appropriations for colleges and universities, community colleges, and state higher education agencies.

***Higher Education Revenues and Expenditures: Institutional Data Volume*, Research Associates of Washington.** Institutional data on current funds expenditures and revenue are reported.

***A National Comparison: Tuition and Required Fees*, Washington Higher Education Coordinating Board.** Average tuition and required fees at public two-year and four-year institutions are reported.

National Postsecondary Student Aid Study, National Center for Education Statistics. This nationwide study shows how students and their families pay for postsecondary education.

***State Budget Actions,* National Conference of State Legislatures.** This annual report provides current state spending priorities in areas such as education, health, and corrections.

***State Expenditure Report,* National Association of State Budget Officers.** This report provides a state-by-state review of expenditures by state government.

Survey of Federal Support to Universities, Colleges, and Nonprofit Institutions, National Science Foundation. This survey collects data on the conditions and trends in federal support for scientific research and development.

Survey of Scientific and Engineering Expenditures at Universities and Colleges, National Science Foundation. This survey collects research and development expenditures from 500 academic institutions.

***Trends in Student Aid,* The College Board.** This report provides the total aid disbursed under each of the major federal aid programs, state grant programs, and institutional programs.

***Tuition and Fees in Public Higher Education in the West,* Western Interstate Commission for Higher Education.** Tuition and fee rates at public institutions in 15 western states are reported.

Faculty/Staff

Administrative Compensation Survey, College and University Personnel Association. Median salaries of senior administrators are reported from nearly 1,400 public and private institutions.

***The Annual Report on the Economic Status of the Profession,* American Association of University Professors.** Average salaries and compensation by rank are provided for U.S. colleges and universities.

Faculty Salary Survey by Discipline and Rank, Oklahoma State University. This report provides salary data by discipline and rank from selected institutions that have a minimum of five Ph.D. programs.

National Faculty Salary Survey by Discipline and Rank in Private Four-year Colleges and Universities, College and University Personnel Association. This annual survey of more than 500 four-year colleges and universities reports salary data on 55 disciplines from five faculty ranks.

National Faculty Salary Survey by Discipline and Rank in Public Four-year Colleges and Universities, College and University Personnel Association. This annual survey of more than 300 four-year colleges and universities reports salary data on 55 disciplines from five faculty ranks.

Survey of Administrative Salaries, University of Alabama. This annual survey provides salary data on selected administrative positions from 131 institutions and 30 university systems. Note that prior to 1998, the University of Arkansas conducted this survey.

Facilities/Libraries/Technology

APPA Comparative Costs and Staffing Report for College and University Facilities. The Association of Higher Education Facilities Officers. More than 500 institutions provide information on the maintenance, operations, and staffing of higher education facilities.

ARL Statistics, Association of Research Libraries. Data on library management such as holdings, expenditures, salaries, preservation, and indicators are reported from 108 major U.S. and Canadian university libraries and a smaller number of governmental, public, and private libraries.

Survey of Academic Research Facilities, National Science Foundation. Data on the amount and condition of research space, renovation and construction of facilities, and sources of capital construction funds from a stratified sample of over 300 institutions are reported.

APPENDIX D. SELECTED SURVEY METHODOLOGY REFERENCES

Babbitt, Bettina A., and Charles O. Nystrom. *Questionnaire Construction Manual.* Alexandria, VA: Fort Hood Field Unit, Systems Research Laboratory, 1989. A manual primarily for the use of those who develop and/or administer questionnaires as part of Army field tests and evaluations. It is intended to be useful to all individuals involved in the construction and administration of surveys, interviews, or questionnaires.

Bourque, Linda B., and Virginia A. Clark. *Processing Data: The Survey Example.* Newbury Park, CA: Sage Publications, 1992. An introduction to data processing in quantitative research, with attention to aspects of questionnaire design, computer applications, coding of closed-ended and open-ended questions.

Bradburn, Norman M., and Seymour Sudman with the assistance of Edward Blair, et al. *Improving Interview Method and Questionnaire Design.* San Francisco, CA: Jossey-Bass, 1979. Discusses methods of interviewing and the effects of types of questions, including loaded questions. The consequences of various aspects of informed consent on nonresponse, response rate, and response quality are also discussed.

Converse, Jean M., and Stanley Presser. *Survey Questions: Handcrafting the Standardized Questionnaire.* Beverly Hills, CA: Sage Publications, 1986. An introduction to the practice of question wording. General strategies for question writing, illustrated by empirical findings, are described. Strategies, purposes, and phases in pre-testing questionnaires are also described, with recommendations for practice.

Cooperative Education Data Collection and Reporting Standards Project Task Force. *SEDCAR: Standards for Education Data Collection and Reporting,* produced by Westat, Inc. Washington, D.C.: National Center for Education Statistics, December 1991. Standards for Education Data Collection and Reporting (SEDCAR) were developed and organized for management of data collection and reporting, design, data collection, data preparation and processing, data analysis, reporting, and dissemination of data.

Dillman, Don. *Mail and Telephone Surveys: The Total Design Method.* New York: Wiley, 1978. *The Total Design Method*, an approach to mail and telephone surveys, identifies each aspect of the survey process that may affect response quality or quantity and shapes them to encourage valid responses. Includes detailed discussion of specific problems in questionnaire construction, organization, and implementation of mail questionnaires and telephone interviews.

Federal Committee on Statistical Methodology. *Approaches to Developing Questionnaires,* prepared by the Subcommittee on Questionnaire Design, edited by Theresa J. Maio. Springfield, VA: Statistical Policy Office, Office of Information and Regulatory Affairs, Office of Management and Budget, 1983. Descriptions of methods for developing questions, using individual unstructured interviews and gathering qualitative group observations. Discusses both formal and informal pre-testing of questionnaires and several methods of evaluating questionnaire drafts.

Federal Committee on Statistical Methodology. ***Survey Coverage,*** **prepared by the Subcommittee on Questionnaire Design. Springfield, VA: Statistical Policy Office, Office of Information and Regulatory Affairs, Office of Management and Budget, 1990.** This book deals with coverage problems in survey research before and after sample selection. Seven case studies from federal surveys and sampling frames are described.

Fink, Arlene, and Jacqueline Kosecoff. ***How to Conduct Surveys: A Step-By-Step Guide.*** **2nd ed. Thousand Oaks, CA: Sage Publications, 1998.** An introduction to survey research covering questionnaire construction, sampling, statistical analysis, and reporting.

Fowler, Floyd J., Jr. ***Improving Survey Questions: Design and Evaluation.*** **Thousand, Oaks CA: Sage Publications, 1995.** Covers the design, evaluation, and validity of questions for survey research.

Lehtonen, Risto, and Erkki J. Pahkinen. ***Practical Methods for Design and Analysis of Complex Surveys.*** **New York: Wiley, 1995.** Textbook on methods for design and analysis of complex surveys; includes case studies.

Lockhart, Daniel C., ed. ***Making Effective Use of Mailed Questionnaires.*** **San Francisco, CA: Jossey-Bass, 1984.** A guide for program evaluators. The book provides case studies, research data, and theory to acquaint researchers with the issues involved in designing mailed questionnaires.

Lyberg, Lars, ed., and others. ***Survey Measurement and Process Quality.*** **New York: Wiley, 1997.** Papers presented at the International Conference on Survey Measurement and Process Quality (Bristol, April 1995) covering a broad range of areas, including questionnaire design; data collection; post-survey processing and operations; quality assessment and control; effects of errors on estimation, analysis and interpretation; effects of computer technology on survey data collection.

Rea, Louis M., and Richard A. Parker. ***Designing and Conducting Survey Research: A Comprehensive Guide.*** **2nd ed. San Francisco, CA: Jossey-Bass, 1997.** The book enables the reader to conduct a sample survey research project from initial conception of the research focus to preparation of the final report, including basic statistical analysis of the data.

Rossi, Peter H., James D. Wright, and Andy B. Anderson. ***Handbook of Survey Research.*** **New York: Academic Press, 1983.** A handbook on theory and practice of sample survey research. Introduction at the graduate level to topics in sampling, data collection, and statistical analysis of survey data.

Salant, Priscilla and Don A. Dillman. ***How to Conduct Your Own Survey.*** **New York: Wiley, 1994.** An introductory textbook on the basic aspects of survey research.

Schwarz, Norbert, and Robert M. Groves. "Survey Methods," in ***The Handbook of Social Psychology.*** **4th ed. Edited by D. Gilbert, S. Fiske and G. Lindzey. New York: McGraw-Hill, 1998.** Provides an introduction to the logic of survey research and reviews the current state of the art in survey methodology.

Schwarz, Norbert, and Hans J. Hippler. "Subsequent Questions May Influence Answers to Preceding Questions in Mail Surveys." ***Public Opinion Quarterly*** **59 (1995): 93-97.** Assessment of the emergence of question-order effects in telephone and mail surveys.

Sudman, Seymour, and Norman M. Bradburn. ***Asking Questions.*** **San Francisco, CA: Jossey-Bass, 1982.** An introduction to the basic principles of questionnaire construction for social science research. Guidelines for question wording of several types of questions and recommendations for questionnaire structure are provided.

Sudman, Seymour, Norman M. Bradburn, and Norbert Schwarz. ***Thinking about Answers: The Application of Cognitive Processes to Survey Methodology.*** **San Francisco, CA: Jossey-Bass, 1996.** Uses results of research from cognitive psychology in constructing questionnaires. Also discusses methods for discovering cognitive processes and problems in questionnaires, cognitive and communicative processes in interviews, context effects, and measurement of behavior; provides guidelines for the construction of questionnaires.

Suskie, Linda A. "Questionnaire Survey Research: What Works." ***Resources for Institutional Research*** **No. 6. Tallahassee, FL: Association for Institutional Research, 1992.** This monograph for institutional researchers on questionnaire survey research is a guide to the basic steps of survey research and a useful reference tool. The monograph is in an informal, question and answer format and organized around all the key steps of the survey research process.

Tanur, Judith M., ed. ***Questions about Questions: Inquiries into the Cognitive Bases of Surveys.*** **New York: Russell Sage, 1992.** A collection of papers covering a range of aspects of survey research.

"The Numeric Values of Rating Scales: A Comparison of Their Impact in Mail Surveys and Telephone Interviews." ***International Journal of Public Opinion Research*** **7 (1) (1995): 72-74.** Specific numeric values presented as part of a rating scale may change the meaning of the scale's verbal endpoints. This article compares the relative strength of the impact of numeric values under telephone and mail survey conditions.

The Survey Kit. **Thousand Oaks, CA: Sage Publications, 1995.** A series of nine textbooks for undergraduate students on survey research methods; each volume contains exercises and suggested readings.

Wentland, Ellen J., with Kent W. Smith. ***Survey Responses: An Evaluation of Their Validity.*** **San Diego, CA: Academic, 1993.** A textbook in which the level of accuracy in social surveys is examined by performing a meta-analysis of 37 selected studies conducted from 1944 to 1988.

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